CLAIMS

What is claimed is:

1. A method for mitigating the effects of reflections of an optical signal in a fiber used for bi-directional communication, the method comprising:

detecting an optical signal that is received over an optical fiber by a transceiver, wherein the optical signal includes a receive signal and a reflected signal;

maintaining information that corresponds to a transmit signal transmitted by the transceiver over the optical fiber to near-end discontinuities; and

canceling a first portion of the reflected signal that corresponds to near-end reflections of the transmit signal caused by the near-end discontinuities.

2. The method of claim 1, wherein the near-end discontinuities include a connector of the transceiver, further comprising maintaining information that corresponds to the transmit signal up to the connector.

3. The method of claim 1, wherein detecting an optical signal that is received over an optical fiber by a transceiver further comprises converting the optical signal to an electronic signal.

4. The method of claim 1, wherein the optical signal includes error correction code, further comprising:

detecting errors in the optical signal using the error correction code; and

correcting the errors using the error correction code.

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5. The method of claim 1, further comprising:

determining an average bias of a second portion of the reflected signal; and

adjusting a threshold detection level to an adjusted threshold level based on the average bias.

6. The method of claim 5, wherein adjusting a threshold level to an adjusted threshold level based on the average bias further comprises adjusting the threshold detection level by one-half of the average bias.

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7. In a digital device deployed in a fiber-optic network, a method for mitigating the effects of reflections of an optical signal, the method comprising:

receiving an optical signal that includes a receive signal and a reflected signal;

converting the optical signal to an electronic signal;

canceling a portion of the reflected signal that is generated by a near-end discontinuity near the digital device from the electronic signal; and

correcting errors, if any, in the electronic signal using an error correction code included in the receive signal.

8. The method of claim 7, wherein canceling a portion of the reflected signal that is generated by a near-end discontinuity near the digital device from the electronic signal further comprises generating an echo cancellation signal.

9. The method of claim 8, the echo cancellation signal being equal but opposite in magnitude to the portion of the reflected signal that is generated by a near-end discontinuity.

10. The method of claim 8, wherein canceling a portion of the reflected signal that is generated by a near-end discontinuity near the digital device from the electronic signal further comprises maintaining information about a transmit signal, the echo cancellation signal being generated from the maintained information.

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11. The method of claim 10, wherein maintaining information about a transmit signal further comprises maintaining information about an amount of reflection caused by the near-end reflection near the digital device, the echo cancellation signal being generated from the information about the amount of reflection caused by the connector near the digital device.

12. The method of claim 7, wherein the digital device further comprises a transceiver, further comprising canceling a portion of the reflected signal by the transceiver.

13. The method of claim 12, wherein the near-end discontinuity includes a connector of the transceiver, further comprising canceling a portion of the reflected signal, the portion of the reflected signal comprising a reflection of a transmit signal from the connector.

14. The method of claim 7, further comprising adjusting a threshold used to interpret the electronic signal.

15. The method of claim 14, further comprising adjusting a threshold used to interpret the electronic signal to account for far-end reflections that are included in the reflected signal.

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16. In a digital device deployed in a fiber-optic network, a method of mitigating the effects of reflections included in an optical signal, the method comprising:

receiving an optical signal that includes a receive signal and a reflected signal;

converting the optical signal to an electronic signal;

canceling a first portion of the reflected signal, wherein the first portion of the reflected signal is caused by a first reflection of a transmit signal caused by the transmit signal interacting with a connector near the digital device;

detecting an average magnitude of a second portion of the reflected signal that is caused by a second reflection of the optical signal, the second reflection being caused by discontinuities located at a distance further from the digital device than the connector;

adjusting a threshold level to an adjusted threshold level, the adjusted threshold level including at least a portion of the average magnitude of the second portion of the reflected signal; and

interpreting the electronic signal as a logical "1" if the electronic signal is at or above an adjusted threshold level.

17. The method of claim 16, wherein canceling a first portion of the reflected signal further comprises generating an echo cancellation signal.

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18. The method of claim 17, further comprising generating the echo cancellation signal such that the echo cancellation is equal but opposite in magnitude to the first portion of the reflected signal included in the electronic signal.

19. The method of claim 17, further comprising:

maintaining information about a portion transmit signal; and

generating the echo cancellation signal from the information.

20. The method of claim 17, further comprising:

maintaining information about an amount of reflection caused by the connector near the digital device; and

generating the echo cancellation signal from the information about the amount of reflection caused by the connector near the digital device.

21. The method of claim 16, further comprising:

detecting an average magnitude of the second portion of the reflected signal by:

detecting the peak value of the second portion of the reflected signal; and

calculating an average magnitude of the second portion of the reflected signal as ½ of the peak value.

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22. The method of claim 16, wherein detecting an average magnitude of a second portion of the reflected signal that is caused by a second reflection of the optical signal further comprises time averaging the magnitude of the second portion of the reflected signal.

23. The method of claim 16, the optical signal including error correction code, the method further comprising:

detecting errors by performing mathematical manipulations of the electronic signal utilizing the error correction code; and

correcting any errors by performing mathematical manipulations of the electronic signal utilizing the error correction code.

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24. In a digital device deployed in a fiber-optic network, a method of mitigating the effects of reflections included in an optical signal wherein the optical signal includes error correction code, the method comprising:

receiving an optical signal that includes a receive signal and a reflected signal;

converting the optical signal to an electronic signal;

detecting an average magnitude of a portion of the reflected signal that is caused by a reflection of the optical signal;

adjusting a threshold level to an adjusted threshold level, the adjusted threshold level including at least a portion of the average magnitude of the reflected signal;

interpreting the electronic signal as a logical "1" if the electronic signal is at or above an adjusted threshold level;

detecting errors in the electrical signal using the error correction code; and

correcting the errors using the error correction code.

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